TUROVA N.F., POGODAYEV, K.I., SAVCHENKO Z.I. (USSR)

"PRotein and Energy Metabolism in the Cerebrum during Fatigue and Exhaustion"

Report presented at the 5th Int'l Biochemistry Congress, Moscow, 10-16 Aug. 1961

TUROVA, N.F.

Ribonucleic acid in the brain of animals during electroconvulsive seizures; a simple cytophotometric method. Ukr. biokhim. zhur. 33 no.6:805-810 '61. (MIRA 14:12)

1. Institute of Higher Nervous Activity and Neurophysiology of the Academy of Sciences of the U.S.S.R., Moscow.
(NUCLEIC ACIDS) (ELECTRICITY—PHYSIOLOGICAL EFFECT)
(BRAIN) (PHOTOMETRY)

POGODAYEV, K.I.; TUROVA, N.F.

Chemical topography of the brain in animals. Trudy 1-go MMI 34: 525-532 '64. (MIRA 18:11)

1. Kafedra psikhiatrii (zav. - zasluzhennyy deyatel' nauki prof. V.M. Banshchikov), laboratoriya patokhimii mozga (zav. - doktor biologicheskikh nauk K.I. Pogodayev) 1-go Moskovskogo ordena Lenina meditsinskogo instituta imeni Sechenova.

POGODAYEV, K.I.; TUROVA, N.F.; KHOVAKH, I.M.; ANDRIANOVA, A.G.

Some indices of the state of brain and blood proteins in animals with exhaustion of the central nervous system. Trudy 1-go MMI 34: 533-540 '64. (MIRA 18:11)

1. Kafedra psikhiatrii (zav. - zasluzhennyy deyatel' nauki prof. V.M. Banshchikov), laboratoriya patokhimii mozga (zav. - doktor biolog. nauk K.I. Pogodayev) 1-go Moskovskogo ordena Lenina meditsinskogo instituta imeni Sechenova.

TUROVA, N.Ya., NOVOSELOVA, A.V., SEMENENKO, K.N.

Solubility in the system beryllium bromide dietherate - ether. Zhur. neorg. khim. 5 no.4:941-944 Ap '60. (MIRA 13:7)

1. Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova.
(Beryllium compounds)

TUROVA, N.Ya.; NOVOSELOVA, A.V.

Alcohol derivatives of alkaline, alkaline earth metals, magnesium, and thallium. Usp.khim. 34 no.3:385-433 Mr '65. (MIRA 18:4)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

86488

15.8117 2209, 2109, 2808, 3215

S/078/60/005/008/021/031/XX
B023/B066

AUTHORS: Turova, N. Ya., Novoselova, A. V., Semenenko, K. N.

TITLE: Compounds of Beryllium Chloride With Ethers

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 8, pp. 1705-1709

TEXT: The authors report on their synthesis and investigation of new compounds of beryllium chloride with dimethyl ether, dibutyl ether, tetrahydropyran, and ethylene glycol dimethyl ether (1,2-dimethoxy-ethane). The following rules were established: 1) The thermal stability of beryllium chloride complexes with ethers of monovalent radicals increases rapidly on transition of compounds of the aliphatic series to cyclic ethers. 2) The melting point of $BeCl_2.2R_2O$ (R = alkyl radical) decreases considerably in the homologous series of aliphatic ethers (at R = CH_3, C_2H_5, n-C_4H_9, the melting point is 63°, 43°, and <-70°C, respectively). 3) The largest difference may be seen in beryllium chloride compounds with ethers

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of mono- and divalent alcohols. Complexes with monoethers form well crystallizable compounds which melt congruently (except $BeCl_2 \cdot 2(CH_3)_2O$) and are soluble in the corresponding ethers, in aromatic hydrocarbons, carbon tetrachloride, and carbon disulfide, but insoluble in paraffin hydrocarbons. On the other hand, compounds of the beryllium halides with ethers of divalent alcohols are decomposed on heating without melting. They are insoluble in all organic solvents, except in alcohols, and are inert to a higher degree than compounds with ethers of monovalent alcohols. All these properties indicate that compounds of beryllium chloride with ethers of divalent alcohols have a polymeric character. Beryllium chloride dioxanate is assumed to have a chain structure formed by the coordination bonds of both oxygen atoms in dioxane. Well soluble and crystallizable monodioxanates, such as chloride, bromide, and iodide dioxanates of divalent mercury are, apparently, polymers with a low association degree. The formation of didioxanates is particularly characteristic of halides of divalent metals having the coordination number 6. The properties of magnesium, nickel, and iron halides, as well as of calcium, strontium, and barium bromides and iodides are similar to those of monodioxanates.

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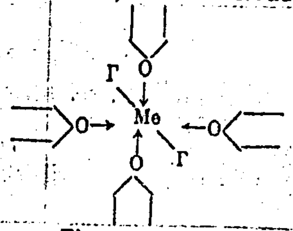
Compounds of Beryllium Chloride With Ethers

S/078/60/005/008/021/031/XX
B023/B066

They are insoluble in dioxane and organic solvents, and separate in the form of a fine crystalline powder. They also have a polymeric structure which is, however, not linear but reticular:



ZNC 1960, Vol 5, No 8,
pp. 1705-1709

Γ = Halogen. There are 4 tables and 14 references: 8 Soviet, 1 US, and 5 German.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: May 22, 1959

Card 3/3

GRIGOR'YEV, A.I.; TUROVA, N.Ya.

Infrared absorption spectra of the alcoholates of beryllium, magnesium and alkaline earth metals. Dokl. AN SSSR 162 no.1: 98-101 My '65. (MIRA 18:5)

1. Moskovskiy gosudarstvennyy universitet. Submitted November 3, 1964.

TUROVA, N.Ya.; GIRGOR'YEV, A.I.; NOVOSELOVA, A.V.; ARZAMANOVA, I.G.;
GUR'YANOVA, Ye.N.

Structure and properties of the complex compound $BeCl_2.AlCl_3.3(C_2H_5)_2O$. Dokl. AN SSSR 164 no.3:590-593 S '65.
(MIRA 18:9)

1. Moskovskiy gosudarstvennyy universitet i Nauchno-issledovatel'skiy fiziko-khimicheskiy institut im. L.Ya. Karpova. 2. Chlen-korrespondent AN SSSR (for Novoselova).

TUROVA, N.Ya.; KEDROVA, N.S.; SEMENENKO, K.N.; NOVOSELOVA, A.V.

Interaction of etherates of beryllium chlorides and aluminum chlorides. Zhur.neorg.khim. 9 no.4:905-916 Ap '64. (MIRA 17:4)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

SEMENENKO, K.N.; TUROVA, N.Ya.

Structure of beryllium chloride hydrate--etherate. Zhur.neorg.khim.
9 no.4:1019-1020 Ap '64. (MIRA 17:4)

TUROVA, N.Ya.; SEMENENKO, K.N.; NOVOSELOVA, A.V.

Compounds of beryllium chloride with phosphorus oxychloride.
Zhur.neorg.khim. 8 no.9:2155-2162 S '63. (MIRA 16:10)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

SEMENENKO, K.N.; TUROVA, N.Ya.

Structure of "onium" compounds of beryllium halides. Zhur.neorg.khim. 8 no.9:2093-2098 S '63. (MIRA 16:10)

SEMENENKO, K.N.; TUROVA, N.Ya.

X-ray diffraction examination of a complex compound of aluminum chloride with diethyl ether. Zhur.neorg.khim. 10 no.12:2830-2831 D '65.

(MIRA 19:1)

SEMENENKO, K.N.; TUROVA, N.Ya.; URAZBAYEVA, R.N.

Synthesis of the lithium aluminum hydride. Zhur.neorg.khim.
5 no.2:508 F '60. (MIRA 13:6)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Aluminum lithium hydride)

TUROVA, N.Ya.; NOVOSELOVA, A.V.; SEMENENKO, K.N.

Solubility in the system beryllium chloride dietherate-ethyl ether. Zhur.neorg.khim. 5 no.1:117-123 Ja '60.
(MIRA 13:5)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Beryllium compounds) (Esther)

SOV/78-4-1o-38/4o

5(2)

AUTHORS: Turova, N. Ya., Novoselova, A. V., Semenenko, K. N.

TITLE: On Compounds of Beryllium Chloride With Tetrahydrofuran

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 1o, pp 241o - 2411(USSR)

ABSTRACT: The system $BeCl_2$ - tetrahydrofuran was investigated in the temperature range - 78 up to +150° (Table 1: Solubility, Fig 1: Phase Diagram, Fig 2: Dependence of logC on $\frac{1}{T}$). At low temperature $BeCl_2 \cdot 3C_4H_8O$ is formed as solid phase at the bottom which decomposes at -2^o to yield $BeCl_2 \cdot 2C_4H_8O$. This melts at $15o^o$ without decomposition, is more stable than the etherate of beryllium chloride when exposed to air, well soluble in benzene and insoluble in petroleum ether. There are 2 figures, 1 table, and 4 references, 3 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: May 22, 1959

Card 1/1

5 (2, 3) SOV/55-58-6-18/31

AUTHORS: Novoselova, A. V., Semenenko, K. N., Turova, N. Ya.

TITLE: Beryllium-organic Compounds (Berilliyorganicheskiye soyedineniya)

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 6, pp 139-147 (USSR)

ABSTRACT: This article gives a survey of the known possibilities of obtaining and of the fundamental properties of beryllium-organic compounds. The data concerning these compounds are from Western publications. The various existing types of beryllium-organic compounds (BeR_2 and BeRX, where R denotes aliphatic or aromatic radicals, X - a halide, alkoxyl, hydrogen or the NR_2 group), as well as the hitherto nearly unknown type RBeR' are discussed in detail. There are 2 tables and 40 references, 4 of which are Soviet.

Card 1/2

Beryllium-organic Compounds SOV/55-58-6-18/31

ASSOCIATION: Kafedra neorganicheskoy khimii (Chair for Inorganic Chemistry)

SUBMITTED: December 25, 1957

Card 2/2

5(2) SOV/78-4-5-10/46

AUTHORS: Turova, N. Ya., Novoselova, A. V., Semenenko, K. N.

TITLE: On the Alcoholates of Beryllium (Ob alkogolyatakh berilliya) Communication I.

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 5, pp 997-1001 (USSR)

ABSTRACT: The syntheses for the preparation of the alcoholates of beryllium were investigated and some properties of beryllium ethylate were discussed. The reaction between metallic beryllium and absolute ethyl alcohol was recommended in the presence of $BeCl_2$, $HgCl_2$ or J for the purpose of synthetizing beryllium ethylate. Beryllium ethylate of the composition $Be(OC_2H_5)_2$ is a white amorphous substance. The product is not soluble in water and in the usual organic solvents. Several properties of beryllium ethylate, especially its behavior with respect ot absolute ethyl alcohol, anhydrous acetic acid, and alcoholic $BeCl_2$-solution were investigated. In the interaction between beryllium ethylate and anhydrous acetic acid in an ether medium an insoluble compound with the composition $Be(OC_2H_5)(OCOCH_3)$ is formed after some hours with a molar ratio of components of 1:1. In the interaction of beryllium

Card 1/2

On the Alcoholates of Beryllium SOV/78-4-5-10/46

ethylate with 0.5 N beryllium chloride solution, beryllium ethylate dissolves completely in absolute ethyl alcohol within two hours. With the evaporation of this solution a syrup-like mass is formed. The dissolution process of beryllium ethylate is connected with the formation of complex compounds of the type $\mathrm{Be(OR)_2 . BeCl_2}$ or $\mathrm{Be(BeCl_2(OR)_2)}$ in alcoholic $\mathrm{BeCl_2}$-solution. The interaction between beryllium and absolute methyl alcohol shows that, in the presence of $\mathrm{BeCl_2}$, $\mathrm{HgCl_2}$ and J, a compound of variable composition is formed, for which the general formula $\left[x\mathrm{Be(OCH_3)_2} . y\mathrm{Be(OCH_3)Hal}\right]$ n holds. In the interaction between $\mathrm{BeCl_2}$ and $\mathrm{Na\left[Be(OCH_3)_4\right]}$ a mixture of NaCl and $\mathrm{Be(OCH_3)_2}$ is formed. There are 13 references, 3 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: February 3, 1958

Card 2/2

SOV/78-4-5-45/46

5(2)

AUTHORS: Turova, N. Ya., Novoselova, A. V., Semenenko, K. N.

TITLE: The Synthesis of the Etherates of Beryllium Halides (Sintez efiratov galogenidom berilliya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 5, pp 1215-1216 (USSR)

ABSTRACT: The synthesis of the etherates of beryllium chloride and beryllium bromide is carried out by the direct interaction between the metallic beryllium and halogens or hydrogen chloride in an absolute ether medium. The syntheses of the etherates of bromides and iodides of beryllium are carried out in the nitrogen flow. The following compounds were isolated: $BeCl_2.2(C_2H_5)_2O$ and $BeBr_2.2(C_2H_5)_2O$. The melting temperatures of the etherates of beryllium chloride and beryllium bromide agree well with the data given by the authors for preparations produced by the interaction of anhydrous halides with ether. It was not possible to represent etherate of beryllium iodide in the purest form. The method described for the synthesis of the etherates of beryllium halides is of a general character and may be used for the production of

Card 1/2

The Synthesis of the Etherates of Peryllium Halides SOV/78-4-5-45/46

etherates of other metal halides. There are 2 references, 1 of which is Soviet.

SUBMITTED: December 15, 1958

Card 2/2

TUROVA, N.Ya.; NOVOSELOVA, A.V.; SEMENENKO, K.N.; SAVOST'YANOVA, R.I.

Beryllium phenolates. Zhur. neorg. khim. 4 no.3:549-552 Mr '59.
(MIRA 12:5)

(Beryllium phenoxide)

NOVOSELOVA, A.V.; SEMENENKO, K.N.; TUROVA, N.Ya.

Beryllium organic compounds. Vest.Mosk.un.Ser.mat.,mekh.,astron., fiz.,khim. 13 no.6:139-147 '58. (MIRA 12:4)

1. Kafedra neorganichskov khimii Moskovskogo gosudarstvennogo universiteta.

(Beryllium organic compounds)

TUROVA, N. Ya. and NOVOSELOVA, A. V.

"Concerning the Interaction of Beryllium Oxyacetate With Ammonium Bifluoride," by N. Ya. Turova, A. V. Novoselova, and K. N. Semenenko, Moscow State University, Zhurnal Neorganicheskoy Khimii, Vol 1, No 11, Nov 56, pp 2567-2569

The experimental results obtained in the work described confirm that as a result of the interaction of $Be_4O(CH_3COO)_6$ with NH_4HF_2 there is rapid decomposition of the oxy-salt and formation of beryllium-fluorine compounds. The decomposition of the reaction products under the action of heat has been investigated and the conditions have been determined under which beryllium fluoride is formed from them.

Sum 1274

SOV/78-4-3-10/34

5(2)

AUTHORS: Turova~~, N. Ya.,~~ Novoselova, A. V., Semenenko, K. N., Savost'yanova, R. I.

TITLE: On the Phenolates of Beryllium (O fenolyatakh berilliya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 3, pp 549-552 (USSR)

ABSTRACT: The interaction between beryllium chloride and β-naphthol and p- and m-cresols has been investigated and the properties of the resulting phenolates have been described. The reaction of beryllium chloride with o-, p-, m-cresol takes place at 90-100°C. The interaction of p- and m-cresol with $BeCl_2$ takes place under a strong development of HCl. The phenolates of beryllium are white, amorphous, hygroscopic substances, which slowly hydrolize in air. Thermographic and radiographic investigations were carried out. The following phenolates have been prepared: β-naphthol beryllium ($Be(OC_{10}H_7)_2$ and $Be(p\text{-}OC_7H_7)_2$ and $Be(m\text{-}OC_7H_7)_2$. The phenolates of beryllium are slightly soluble in benzene and xylene, stable in ether. Decomposition occurs under the action of methyl alcohol.

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SOV/78-4-3-10/34

On the Phenolates of Beryllium

There are 1 figure and 7 references, 2 of which are Soviet.

SUBMITTED: January 4, 1958

Card 2/2

SITDYKOVA, N.S.; TUROVA, N.Ya.; SEMENENKO, K.N.; NOVOSELOVA, A.V.

Compounds of beryllium chlorides with dialkyl sulfides. Zhur.
neorg.khim. 6 no.11:2512-2516 '61. (MIRA 14:10)
(Beryllium chloride) (Sulfide)

TUROVA, N. Ya., Cand Chem Sci -- "Synthesis and physico-chemical study of ~~the formation~~ compounds of beryllium halides ~~compounds with ethers.~~ and simple esters." Mos, 1961. (State Com of the ~~Soviet~~ Council of Ministers USSR on Chem. Order of Labor Red Banner Sci-Res Phys-Chem Inst im L. Ya. Karpov. (KL, 8-61, 232)

TUROVA, N.Ya.

Apparatus for the determination of the elctric conductivity of nonaqueous solutions. Zhur. fiz. khim. 35 no.7:1634-1635 Jl '61. (MIRA 14:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Solution (Chemistry))—(Electric properties)

TUROVA, N.Ya.; SEMENENKO, K.N.; NOVOSELOVA, A.V.

Infrared absorption spectra and some problems of the complex formation of inorganic halides with ethers. Zhur.neorg.khim. 8 no.4:882-892 Ap '63. (MIRA 16:3)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Halides) (Ethers) (Complex compounds--Absorption spectra)

TUROVA, N.Ya.; NOVOSELOVA, A.V.

Compounds of beryllium bromide and iodide with ethers. Zhur.neorg.-khim. 8 no.2:525-528 F '63. (MIRA 16:5)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Beryllium halides) (Ethers)

TUROVA, N.Ya.; SITDYKOVA, N.S.; NOVOSELOVA, A.V.; SEMENENKO, K.N.

Thermal decomposition of beryllium halide etherates. Zhur.neorg.-khim. 8 no.2:528-531 F '63. (MIRA 16:5)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Beryllium halides) (Ethers)

SEMENENKO, K.N.; TUROVA, N.Ya.

Structure of beryllium chloride hydrate. Zhur. neorg. khim. 10 no.1:77-82 Ja '65. (MIRA 18:11)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
Submitted July 19, 1963.

TUROVA-POLYAK, M.B.; DENISOVA, Ye.P.

Preparation of esters on an aluminosilicate catalyst. Zhur. ob. khim. 34 no.8:2654-2658 Ag '64. (MIRA 17:9)

1. Moskovskiy gosudarstvennyy universitet im. Lomonosova.

TUROVA-POLYAK, M.B.; SOSNINA, I.Ye.; NGO TKHI TKHUAN; KHOANG CHONG IEM;
DENISOVA, Ye.P.

Use of the oxides of rare earth elements in catalytic synthesis.
Dokl. AN SSSR 157 no.3:643-645 Jl '64. (MIRA 17:7)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
Predstavleno akademikom A.A. Balandinym.

STEPANOV, Ye.M.; ANDREYEV, M.N.; OSHAROVA, Ye.A.; GERASIMOVA, S.A.;
ANTUSHEVA, R.I.; TUROVA, R.I.

Effect of different feeding levels on the physiological condition of the organism of sheep. Trudy VIEV 26:190-192 '62. (MIRA 16:2)

1. Laboratoriya fiziologii Vsesoyuznogo instituta eksperimental'noy veterinarii.

(Sheep—Feeding and feeds)

LUR'YE, G.B., prof.; POLYANSKIY, P.M., kand.tekhn.nauk; PANTYUKHOV, I.V.; TUROVA, V.M.

Automatic control of the grinding of tracks for conical roller bearings. Mashinostroitel' no.1:16-18 Ja '65. (MIRA 18:3)

LUNTS, D.R. (Moskva); TAL'TSE, M.F. (Moskva); TUROVA, Z.G. (Moskva);
PIVOVAROVA, V.L. (Moskva); GORBUNOVA, N.I. (Moskva)

Discrepancies in diagnostic and expert examinations as revealed by data of the V.P.Serbskii Institute on repeated expert examinations. Probl.sud.psikh. 9:503-516 '61. (MIRA 15:2)
(Forensic psychiatry) (Mental illness)

TUROVA, Z. G.

Delimitation of schizophremia from psychopathy. Prak. sudebnopsikh. ekspert. no.1:22-29 '60. (MIRA 15:7)

(SCHIZOPHREMIA) (PSYCHOLOGY, PATHOLOGICAL)

ROZHNOV, V.Ye.; TUROVA, Z.G.

Peculiarities of alcoholic intoxication in psychopathic personalities.
Sud.-med. ekspert. 4 no. 1:19-23 Ja-Mr '61. (MIRA 14:4)

1. TSentral'nyy nauchno-issledovatel'skiy institut sudebnoy psikhiatrii imeni Serbskogo (dir. - dotsent G.V. Morozov).
(DRUNKENNESS (CRIMINAL LAW)) (MENTAL ILLNESS)

TUROVA, Z.G. (Moskva)

Biochemical and neurodynamic reactions to small doses of alcohol by persons suffering with chronic alcoholism. Probl.sud.psikh. 9:413-418 '61. (MIRA 15:2)

(ALCOHOLISM)

ROZHNOV, V.Ye; TUROVA, Z.G.; GAL'PERIN, L. Ye. (Moskva)

Some neurodynamic and biochemical changes in chronic alcoholics under the influence of small doses of alcohol. Trudy Gos. nauch-issl. inst. psikh. 38:203-210 '63. (MIRA 16:11)

ROZHNOV, V.Ye.; TUROVA, Z.G.; GAL'PERINA, R.Ye.

Dynamic study of the alcohol content in the blood and the bioelectrical activity of the brain in chronic alcoholics after administering small doses of alcohol. Sud.-med.ekspert. 4 no.3: 48-51 Jl-S '61. (MIRA 14:10)

1. TSentral'nyy nauchno-issledovatel'skiy institut sudebnoy psikhiatrii imeni prof. Serbskogo (dir. - dotsent G.V.Morozov).
(ALCOHOL—PHYSIOLOGICAL EFFECT)

TUROVA, Z.G.

Characteristics of the alcohol content in the blood of persons suffering from chronic alcoholism following the intake of small doses of alcohol. Probl.sud.psikh. no.12:153-160 '62. (MIRA 16:4)

(ALCOHOLISM) (BLOOD—ANALYSIS AND CHEMISTRY)

ROZHNOV, V.Ye.; TUROVA, Z.G.

Differential diagnosis of pathological intoxication. Probl.sud.
psikh. no.12:33-39 '62. (MIRA 16:4)
(DIAGNOSIS, DIFFERENTIAL) (ALCOHOLISM)

TUROVER, YA. M.

109-4-4/20

AUTHOR: Turover, Ya.M.

TITLE: A Method of Evaluating the Local Reflection Coefficients of the Optimum Step-like (line or waveguide) Transformers. (Sposob vychisleniya mestnykh koeffitsiyentov otrazheniya optimal'nykh stupenchatykh perekhodov)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol.2, No.4, pp. 395 - 400 (USSR)

ABSTRACT: In an earlier work [Ref. 1], the author described a method of applying the Chebushev polynomials to the design of step-like transformers. Here, an attempt is made to employ the polynomials in the evaluation of the so-called optimum transformers. It is shown that a binomial-law transformer, which is based on the coefficients of the Pascal triangle, leads to simple mathematical formulae which permit the evaluation of the individual reflection coefficients and the line impedances of the steps of the transformer. By introducing the Chebyshev polynomials of the first kind, the Pascal triangle is modified and generalised as follows:

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A Method of Evaluating the Local Reflection Coefficients of the Optimum Step-like (line or waveguide) Transformers.

$$
\begin{array}{l}
1 \\
1 \; ; \; 1 \\
1 \; ; \; 2(1 - t^{-2}) \; ; \; 1 \\
1 \; ; \; 3(1 - t^{-2}) \; ; \; 3(1 - t^{-2}) \; ; \; 1 \\
1 \; ; \; 4(1 - t^{-2}) \; ; \; 6(\frac{1}{2} - \frac{2}{3}t^{-2} + \frac{1}{6}t^{-4}) \; ; \; 4(1 - t^{-2}) \; ; \; 1 \\
\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{etc.}
\end{array}
\qquad \text{Eq.(X) (see text)}
$$

where t is a coefficient of the transformer, which is defined by:

$$t = \frac{1}{2}\left[(r + \sqrt{r^2 - 1})^{\frac{1}{n}} + (r - \sqrt{r^2 - 1})^{\frac{1}{n}}\right] \qquad (1)$$

where $r = \Gamma / \Gamma_{in}$; Γ is the reflection coefficient of the system when the two lines or waveguides are joined directly and Γ_{in} is the maximum value of the reflection coefficient of the transformer with matched lines; n is the number of steps. The parameter t is also related to the bandwidth of the transformer, namely:

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A Method of Evaluating the Local Reflection Coefficients of the Optimum Step-like (line or waveguide) Transformers. 109-4-4/20

$$t = - \sec \left(\pi q \middle/ (1 + q) \right) \qquad (3)$$

where $q = \lambda_{max}/\lambda_{min}$; λ_{min} and λ_{max} are the minimum and maximum operating wavelengths. The values of t are given in a table (for r up to 20 and for n up to 10) and are shown in a graph. It appears that for a proper understanding of the paper it is desirable to study the author's earlier work [Ref. 1]. The paper contains two other references.

SUBMITTED: May 12, 1956

AVAILABLE: Library of Congress.

Card 3/3

TUROVER, YA. M.

Category : USSR/Radiophysics - Radiation of radio waves. Antennas I-5

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 1876

Author : Turover, Ya. M., Strutinskiy, N.I.
Title : Use of Chebyshev Polynomials for the Design of Stepped Transitions

Orig Pub : Radiotekhn. i elektronika, 1956, 1, No 2, 143-161

Abstract : A method is proposed, by which stepped transitions in transmission lines are solved by using Chebyshev polynomials of the first kind. The advantage of stepped transitions, calculated in this manner, is the greater transition gain and a smoother transition for a specified transition length and for a specified overlap coefficient compared with the stepped transitions known as "binomial." The calculation method presented neglects local waves at the joints between steps and disregards multiple reflections. Only the theory of the method is covered and is illustrated by many graphs and by some numerical examples; brief information on the Chebyshev polynomials of the first kind is also given.

Card : 1/1

TUROVA, Z. G.

"Psychogenic Puerilism in Forensic-Psychiatric Clinics." Cand Med Sci, Leningrad State Order of Lenin Inst for the Advanced Training of Physicians imeni S. M. Kirov, Moscow 1954. (KL, No 7, Feb 55)

SO: Sum. No. 631, 26 Aug 55 - Survey of Scientific and Technical Dissertation Defended at USSR Higher Educational Institutions. (14)

TUROVA, Z.G.

Psychogenic puerilism in the legal psychiatric clinic. Probl.
sud.psikh. 8:124-143 '59. (MIRA 13:6)
(Childishness)

TUROVA, Z.G.

Certain disorders of simultaneous function of the first and second signal systems in puerile syndrome. Zhur. vys. nerv. deiat. 4 no.3: 324-338 My-Je '54. (MLRA 8:2)

1. TSentral'nyy nauchno-issledovatel'skiy institut sudebnoy psikhiatrii im. V.P.Serbskogo.

(CEREBRAL CORTEX, PHYSIOLOGY,
signal system, correlation disord. in regression synd. in 20-year-old)
(BEHAVIOR MECHANISM,
regression synd. in 20-year old with signal system disord.)

GEPTNER, V. G., TUROVA-MOROZOVA, L. G.

Zoology - Variation

Contribution to the study of the wolf with a description of a new method for ascertaining changes in mannals according to age. Sbor. trud. Zool. muz. 7, 1951

Monthly List of Russian Accessions, Library of Congress, July 1952. UNCLASSIFIED

TUROVA-MOROZOVA, L.G.

Distribution of the subterranean vole Pitymys substerraneus De Sel.-Long in the European part of the U.S.S.R. Nauch.dokl. vys.shkoly; biol.nauki no.3:73-75 '59. (MIRA 12:10)

1. Rekomendovana Zoologicheskim muzeyem Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova.
(Field mice)

TUROVA-MOROZOVA, L.G.

New find of the subterranean vole Pitymys subterraneus De Sel-Long. Biul. MOIP. Otd. biol. 64 no.2:134 Mr-Ap '59. (MIRA 12:10)
(Vytegra District--Field mice)

PROCESSES AND PROPERTIES INDEX

1A

21

The light fractions from shale tar. R. Ya. Levina and M. B. Turova. *Khim. Tverdogo Topliva* 2, No. 6, 21-31(1931). In the distn. of shale tar with steam only about 11% of oil b. 100-200°, S 11-11.6%, is obtained. Unsatisfactory results were obtained in an attempt to remove the S with Na, Cu, Cu catalyst, $HgCl_2$ and basic Hg acetate. Treatment of the 100-70° fraction with H_2SO_4 gave the following results: (1) Unsatd. compds. and sulfurous products 57% (35-40% sulfurous compds.), (2) condensation products (derived from treatment with H_2SO_4 of 1.83 sp. gr.) 20%, (3) aromatic compds. removed with fuming H_2SO_4 10%, (4) condensation products obtained through the action of fuming H_2SO_4 6%, (5) hexamethylene hydrocarbons 1.4-1.5%, (6) fats and pentamethylene hydrocarbons 4.6-4.8%, and (7) losses 1%. In an exptl. cracking (20% $AlCl_3$) 24% of an oil (170-200°) contg. 2.2% S was obtained. S was reduced to 0.02% and the unsatd. hydrocarbons were removed completely after treatment with H_2SO_4 of 1.83 sp. gr., giving a final yield of 21%.

A. A. Boehtlingk

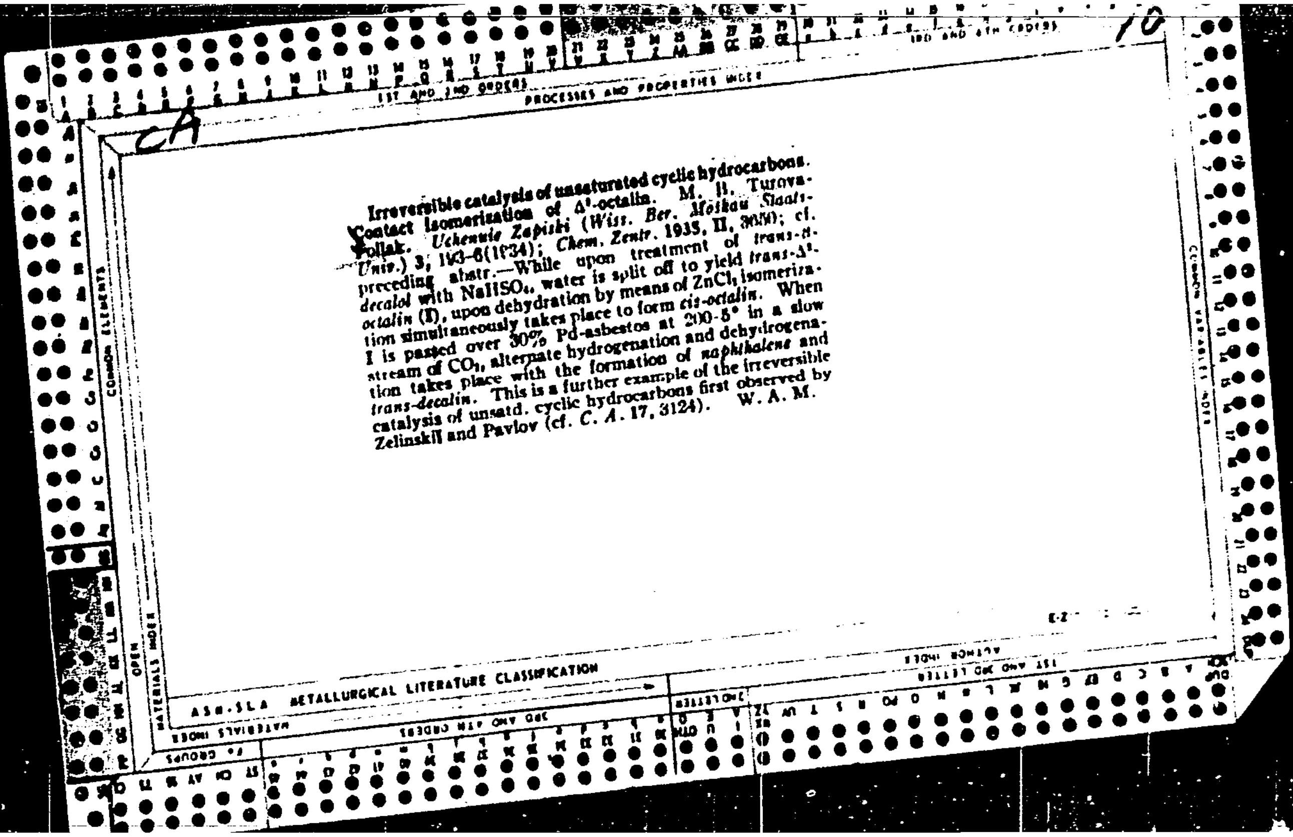
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Isomerization of hexamethylene to methylpentamethylene and dimethyltetramethylene with aluminum bromide and aluminum chloride. N. D. Zelinskii and M. B. Turova-Polyak. *J. Gen. Chem.* (U. S. S. R.) 2, [illegible] (1932); cf. *C. A.* 19, 2910; 24, 1165.—According to Sachse (*Ber.* 23, 1363(1890)) and Mohr (*C. A.* 13, 2211; there are possible 2 stereoisomers of cyclohexane (I). After Hückel (*C. A.* 19, 1260) had sepd. the stereoisomers of decahydronaphthalene (II) and hydrindane (III), and the authors had showed that *cis*-II and *cis*-III can be transformed into the *trans*-isomers by the action of $AlBr_3$, it was of interest to inquire into the *cis-trans* isomerism of I. Com. I, purified with H_2SO_4 contg. 7% SO_3, then washed, dried and distd. over Na, b_{760} 80.5-1°, n_D^{20} 1.4268, d_4^{20} 0.7783, M_D 27.69 (theory 27.70), is identical with I synthesized by Z. (*Ber.* 34, 2799(1901)). A mixt. of 140 g. I and 148 g. $AlBr_3$ (3:1 mols.) was refluxed 24 hrs. in a water bath with exclusion of air moisture, then sepd. from a layer of complex compds., washed with dil. Na_2CO_3 and H_2O, dried and distd., producing 4 fractions: b. to 78°, n_D^{20} 1.4244, b. 78.9°, n_D^{20} 1.4219; b. 79-80°, n_D^{20} 1.4239, and b. 80-1°, n_D^{20} 1.4244. A mixt. of the fractions b. 78-80° was boiled again 12 hrs. with $AlBr_3$ as above, and distd. with a fractionating column 53 cm. long, giving 4 fractions: (1) small amt. b. to 75°, n_D^{20} 1.4154; (2) 17 g., b. 75-7°, n_D^{20} 1.4182, d_4^{20} 0.7624, M_D 27.80; (3) 68 g., b. 77-8°, n_D^{20} 1.4212, d_4^{20} 0.7676, M_D 27.80; (4) 19 g., b. 78-9°, n_D^{20} 1.4244, d_4^{20} 0.7725, M_D 27.82

METALLURGICAL LITERATURE CLASSIFICATION

distd. over Na, m. —12°, b_{760} 236-8°, n_D^{20} 1.4842, d_4^{20} 0.8912, mol. refr. 53.30, calcd. for $C_{12}H_{22}$ (IV) 53.22. By working with HBr (d. 1.82) as described above there was obtained the identical product. Dehydrogenation over Pd-asbestos at 300° produced only Ph_2, crystals from alc. m. 69-70°. (b) A mixt. of 40 g. cryst. V and 4 vols. of HI was heated 9 hrs. at 240-50° in a sealed tube, producing a hydrocarbon without a const. m. p., which, repeatedly redistd., gave 1.5 g., b. 221-5° (cor.), n_D^{20} 1.4663, d_4^{20} 0.8600, mol. refr. 53.54, and 16 g. b. 253-4° (cor.), n_D^{20} 1.4731, d_4^{20} 0.8768, mol. refr. 53.14; neither fraction crystallizes at —20°. The main fraction dehydrogenated at 300° over Pt-C produced chiefly Ph_2, the unreacted part (3 g.) reduced with Pt-C, b. 225-7° and analyzed for $C_{12}H_{22}$. (c) A mixt. of 300 g. cryst. V and 3 vols. of HI was heated 9 hrs. at 260-80° and repeatedly redistd., producing 3 fractions: 3 g., b. 200-21°, n_D^{20} 1.4877, 10 g., b. 223-8°, n_D^{20} 1.4728, and 65 g., b. 230-4°, n_D^{20} 1.4763. Subjected to exhaustive dehydrogenation over Pt-C, the 1st fraction remained unchanged, while the other 2, contg. considerable IV, gave good yields of Ph_2, which was frozen out and filtered off at —10°, and the residue passed over Pt-C at 210-20°, then repeatedly redistd., giving 3 fractions: 1 g., b. 193-9°, n_D^{20} 1.4000, 1.5 g., b. 210-6°, n_D^{20} 1.4675, and 6 g., b. 220-8.5°, n_D^{20} 1.4728, d_4^{20} 0.8718, mol. n 53.45. None of the fractions solidified at —20°. The properties of the fraction b. 226-8.5° indicate its intermediate position between 3,3-dimethylbicyclopentyl, b. 213-5°, n_D^{20} 1.4582, d_4^{20} 0.8483, and IV, and is considered as consisting chiefly of methylcyclopentylcyclohexane, *i. e.*, a product of a profound isomerization of some propane which with H_2 gives a satd. hydrocarbon with an open chain, $MeCH_2CHMe$-CH_2Me

Chas. Blanc



CA

10

Irreversible catalysis of unsaturated cyclic hydrocarbons. Contact isomerization of Δ^1-octalin. M. B. Turova-Pollak. *Uchenuie Zapiski* (*Wiss. Ber. Moskau Staats-Univ.*) 3, 193-6(1934); *Chem. Zentr.* 1935, II, 3030; cf. preceding abstr.—While upon treatment of *trans-β-decalol* with $NaHSO_4$, water is split off to yield *trans-Δ^1-octalin* (I), upon dehydration by means of $ZnCl_2$ isomerization simultaneously takes place to form *cis-octalin*. When I is passed over 30% Pd-asbestos at 200-5° in a slow stream of CO_2, alternate hydrogenation and dehydrogenation takes place with the formation of *naphthalene* and *trans-decalin*. This is a further example of the irreversible catalysis of unsatd. cyclic hydrocarbons first observed by Zelinskii and Pavlov (cf. *C. A.* 17, 3124). W. A. M.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

10

ka

**The isomerization phenomena in the cracking of
decahydronaphthalene with aluminum chloride.** N. D.
Zelinskii and M. B. Turova-Polyak. *J. Applied Chem.*
(U. S. S. R.) 7, 783-6(1934).—The decalin (the com.
product) was treated with 7% fuming H_2SO_4, dried and
carefully redistd. over metallic Na. It then b. 102-3°.
This product was cracked by heating it on a Babo funnel
in the presence of 10% of dry and finely powd. $AlCl_3$,
using mech. agitation and withdrawing the gaseous prod-
ucts as formed. The temp. of the reacting mass was
maintained at 175-210° and that of the volatile hydro-
carbons was 130-180°. Gases were almost entirely
absent. The cracked products distd. completely at 80-
180° and the fraction b. 170-180° was recracked with
$AlCl_3$. The washed and dried cracked product was frac-
tionated over metallic Na between 70-175° into 5
fractions (consts. are tabulated) and it was found to be
inert to $KMnO_4$ and strong H_2SO_4. The fractions were
then subjected to dehydrogenation in the presence of Pt
pptd. on C at 300°, the process being repeated to a const.
n of the fractions. The properties of the products are
tabulated. It is concluded that the cracking causes an
isomerization of the 6-membered bicyclic nucleus. The
cis-form of the decalin is first isomerized under the in-
fluence of $AlCl_3$ and is then transformed into a bicyclic
system composed of 2 pentamethylene rings. Simul-
taneously, products of a severe decompn. are formed,
viz., hexamethylene and pentamethylene hydrocarbons
(b. 70-150°) and only quite an insignificant amt. of
paraffin hydrocarbons is formed through deeper decompn.
accompanied by hydrogenation. A. A. Boehtlingk

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

BC

a-3

Destructive catalysis of hydrindene and hydrindane. M. B. Turova-Polyak (J. Gen. Chem. Russ., 1936, 6, 617—[illegible]).—Hydrogenation of hydrindene (I) at 300—360° in presence of Pt affords mainly o-C_6H_4MeEt, converted by Br and $AlBr_3$ into C_6MeBr_5. Hydrindane at 310—320° gives chiefly (I).

J. J. B.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

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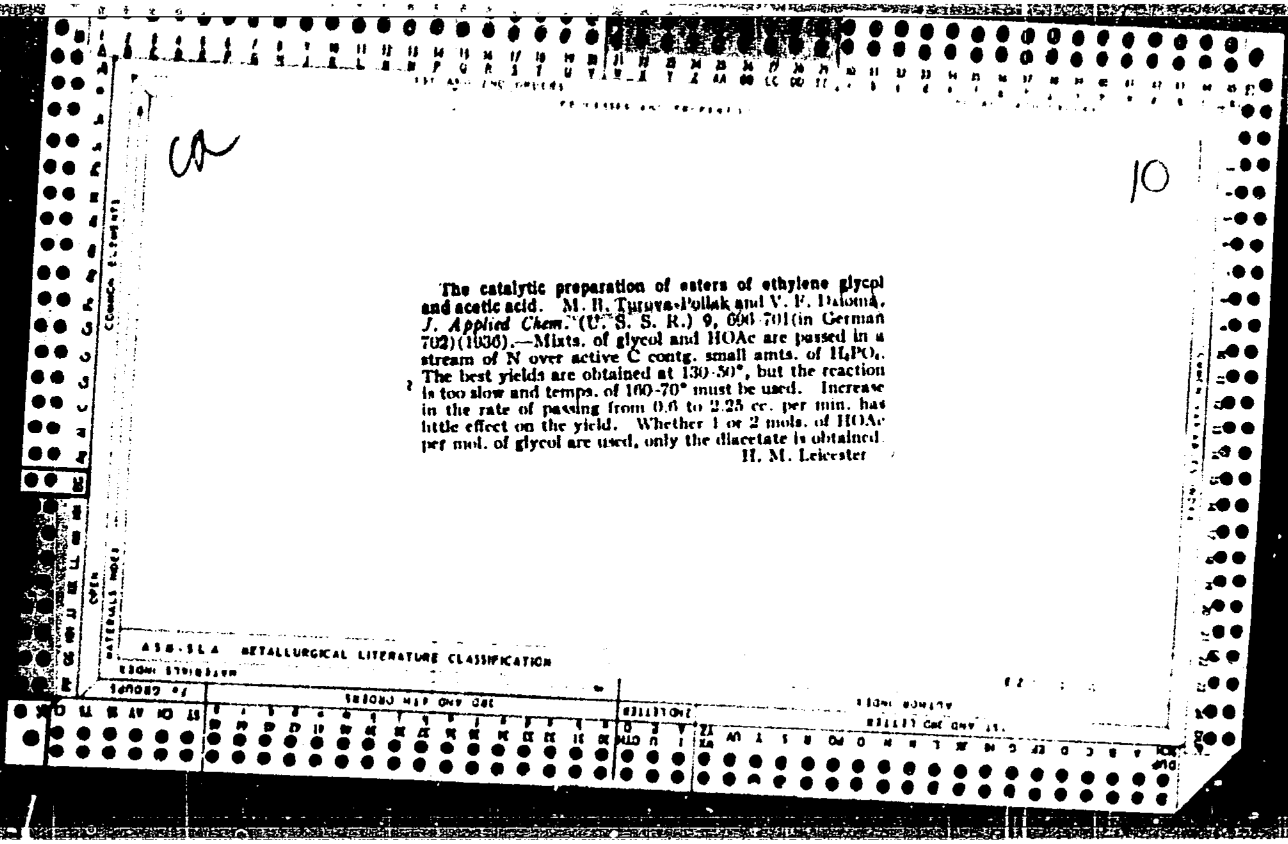
AUTHOR INDEX



CA

10

The catalytic preparation of esters of ethylene glycol and acetic acid. M. B. Turova-Pollak and V. F. Daloma. *J. Applied Chem.* (U. S. S. R.) 9, 696-701 (in German 702) (1936).—Mixts. of glycol and HOAc are passed in a stream of N over active C contg. small amts. of H_3PO_4. The best yields are obtained at 130-50°, but the reaction is too slow and temps. of 160-70° must be used. Increase in the rate of passing from 0.6 to 2.25 cc. per min. has little effect on the yield. Whether 1 or 2 mols. of HOAc per mol. of glycol are used, only the diacetate is obtained.

H. M. Leicester

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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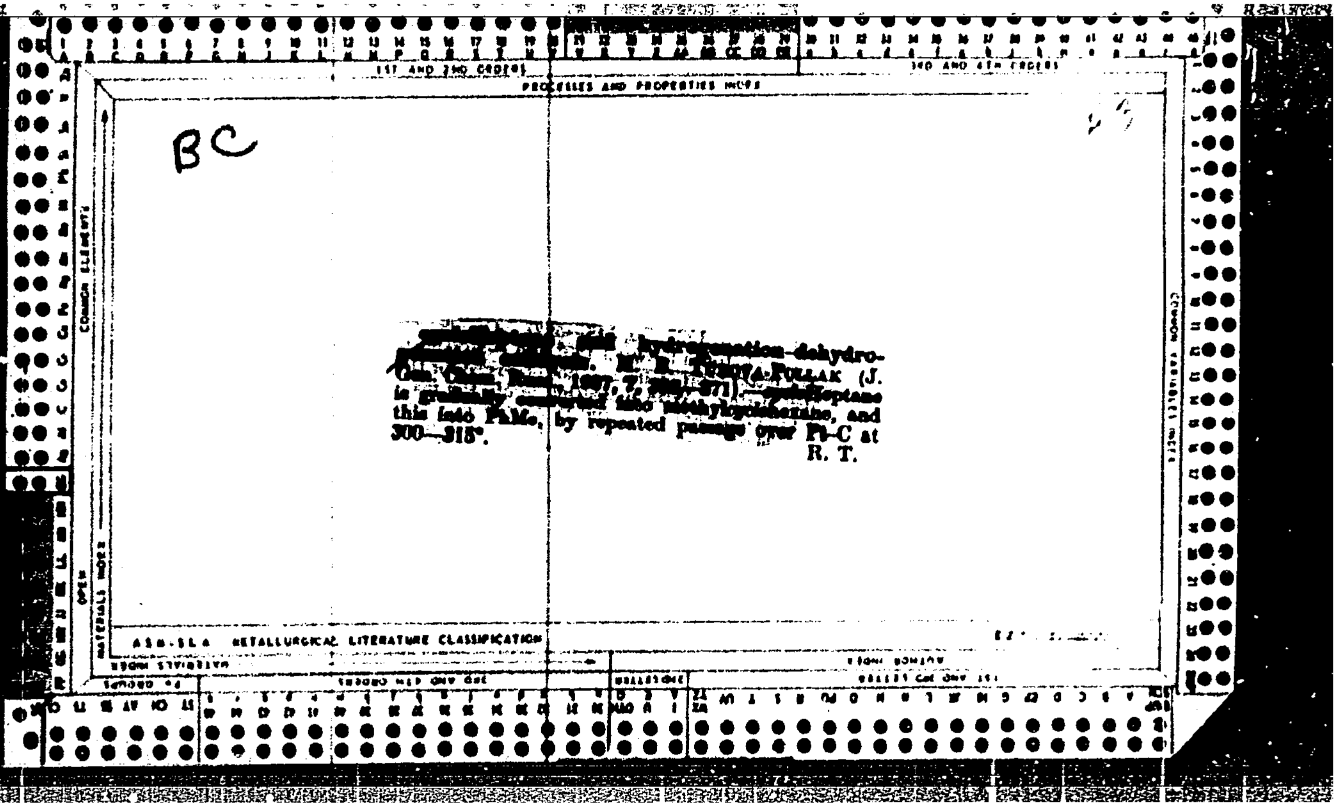
3RD AND 4TH ORDERS

βc

B-II-1

Catalytic preparation of propyl and isopropyl acetate and butyrate. III. M. B. TUBOVA-POLLAK and E. V. PROKOFIEVA (J. Appl. Chem. Russ., 1936, 9, 2203—2206; cf. A., 1936, 831).—The highest yields of esters are obtained by passing acid-alcohol mixture over $C-H_3PO_4$ at 100°, but the reaction is very slow. A temp. of 120° is recommended for practical purposes. Optimum rates of flow are determined, at 120°. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION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BC

[illegible] hydrogenation-dehydrogen[illegible]. M. R. [illegible]-Pollak (J. Gen. Chem. Russ., 1937, 7, [illegible]—371).—n-Heptane is gradually converted into methylcyclohexane, and this into PhMe, by repeated passage over Pt-C at 300—315°.

R. T.

1ST AND 2ND ORDERS

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3RD AND 4TH ORDERS

BC

A 3

Isomerisation in cracking of hydrindene with aluminium chloride. M. B. Turova-Pollak and F. I. Podolskaja (J. Gen. Chem. Russ., 1937, 7, 1736—1741).—Hydrindene yields cyclopentane derivatives and methylcyclopentane when heated with $AlCl_3$ at 170—220°. R. T.

COMMON ELEMENTS

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OPEN

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ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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Cracking of tetrahydronaphthalene with aluminum chloride. M. B. Turova-Pollak and N. B. Lyubimova. *J. Gen. Chem.* (U. S. S. R.) 8, 538-42 (in English 543) (1938).—Dried and redistd. com. tetralin, b. 203-4°, d^{20} 0.971, n^{20} 1.5437, when mixed with 10-30% of anhyd. $AlCl_3$ and heated at 170-270° gave up to 50% distillate, b. 65-106°, contg. 53% aromatic, 15% hexamethylene, 28.1% pentamethylene and 3.9% methane hydrocarbons. It contains no anthracene, phenanthrene or unsatd. hydrocarbons. The benzene fraction, b. 80-95°, [illegible] contains up to 82% of aromatic hydrocarbons.

Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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BC

H-3

Catalytic preparation of isoamyl acetate. IV. M. B. Turova-Polyak and L. A. Vorotnikova (J. Appl. Chem. [illegible], [illegible], 643—646).—The [illegible] of $C_5H_{11}·OH$ and AcOH [illegible] (D-H [illegible] catalyst). The yield falls sharply as the temp. exceeds 150°, owing to dehydration of the alcohol to yield amylene.
R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

TUROVA-POLYAK, M. B., POLYAKOVA, O. I.

"Isomerization of Polymethylenic Hydrocarbons
Under the Influence of Aluminum Chloride -- I.
Isomerization of Propylcyclopentane,"

Zhur. Obshch. Khim., 9, No. 3, 1939.

Laboratory of Organic Chemistry imeni Academician N. D.
Zelinskiy, Moscow State University.

Received 31 May 1938

Report U-1517, 22 Oct 1951

TUROVA-POLYAK , M. B., BARANOVSKAYA, N. B.

"Isomerization of Polymethylenic Hydrocarbons
Under the Influence of Aluminum Chloride -- II.
Isomerization of Methyl Cyclopentane,"

Zhur. Obshch. Khim., 9, No. 5, 1939.

Laboratory of Organic Chemistry imeni Academician N. D.
Zelinskiy, Moscow State University.

Received 29 June 1938.

Report U-1517, 22 Oct 1951

TUROVA-POLYAK, M. B.; MAKAYEVA, Z.

"Isomerization of Polymethylenic Hydrocarbons under the Influence of Aluminum Chloride" Part III "The Isomerization of Ethylcyclopentane and Methylcyclohexane",

Zhur. Obshch. Khim., 9, No. 14, 1939.

Laboratory of Organic Chemistry imeni Academician
N. D. Zelinskiy,
Moscow State Univ.

Rec'd. 20 April 1939.

Report U-1614, 3 Jan. 1952

1ST AND 2ND ORDERS

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CA

10

Isomerization of polymethylene hydrocarbons under the influence of aluminum chloride. IV. Isomerization of butylcyclopentane. M. B. Turova-Pollak and A. F. Koshelev. *J. Gen. Chem.* (U. S. S. R.) 9, 2179-83(1939); cf. *C. A.* 34, 727⁴.—When 40 g. butylcyclopentane (I), b_{760} 156.2-6.8°, d_4^{20} 0.7833, n_D^{20} 1.4317, is heated with 14 g. $AlCl_3$ at 100-5° for 20-4 hrs., it forms 94% of a reaction mixt. contg. 80% trimethylcyclohexane (II), 13.7% cyclopentane (III) and 0.3% paraffin hydrocarbons. II contains chiefly hexahydropseudocumene, while III is a mixt. of lower cyclopentanes and I. Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

TUROVA-POLYAK, M. B.; TARASOVA, G. A.

"Isomerization of Polymethylenic Hydrocarbons under the Influence of Aluminum Chloride" Part V. "Isomerization of n.-amylcyclopentane" Zhur. Obshch. Khim., 10, No. 2, 1940. Laboratory of Organic Chemistry imeni Academician N. D. Zelinskiy, Moscow State University. Received 11 July 1939.

[redacted] Report U-1526, 24 Oct 51.

1ST AND 2ND ORDERS

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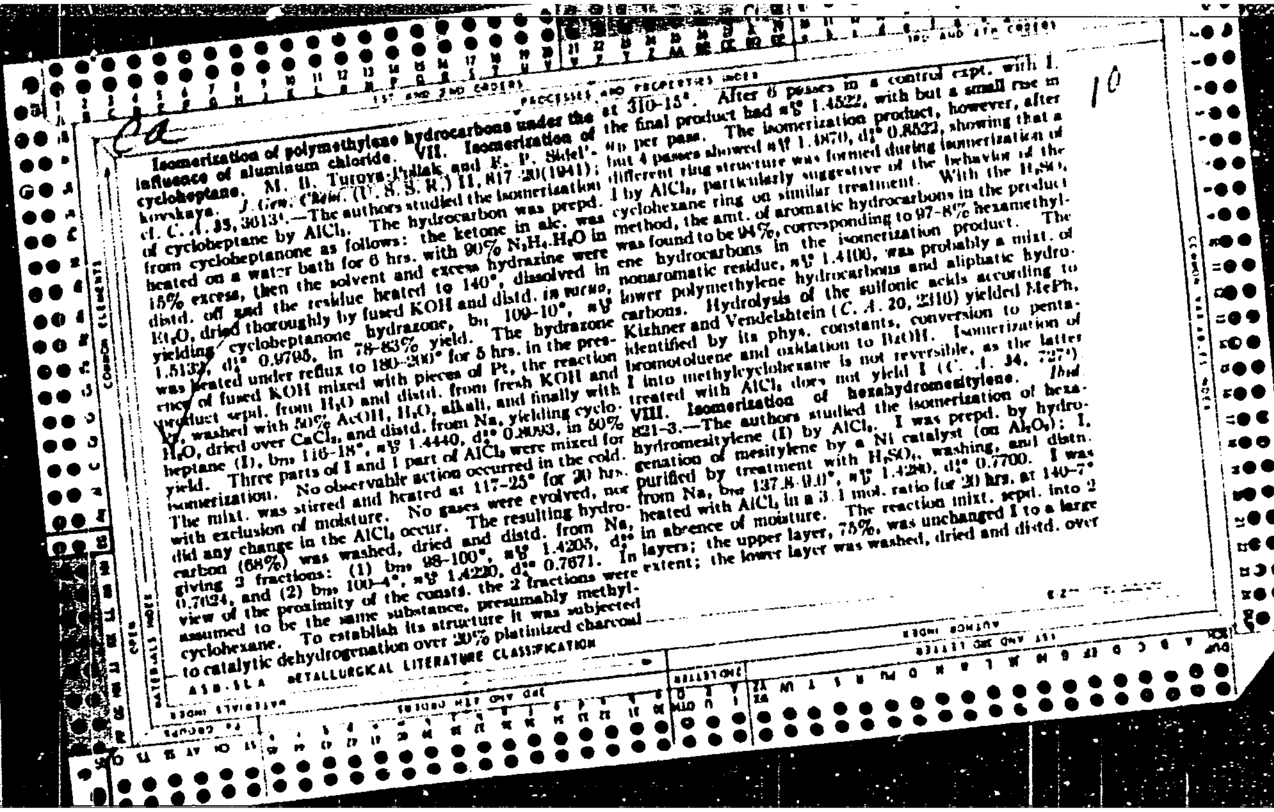
CA

10

Isomerization of polymethylene hydrocarbons under the influence of aluminum chloride. VI. Isomerization of isopropylcyclopentane. M. B. Turova-Pollak and T. A. Slovokhotova. *J. Gen. Chem.* (U. S. S. R.) 10, 1435-8 (1940); *Foreign Petroleum Tech.* 9, 28-34(1941)(in English); cf. *C. A.* 34, 7283'. Heating isopropylcyclopentane with $AlCl_3$ at 125-30° yielded 87% (by wt. of the compd. used) of a hydrocarbon mixt., which consisted of hexamethylene (*p*- and *m*-dimethylcyclohexanes) 87.7, pentamethylene 9.4 and paraffin hydrocarbons 2.9%. The structure of the side chain of the cyclopentane hydrocarbon had no influence on the structure of the products of its isomerizations. Thus, propyl- and isopropylcyclopentane yielded the same *p*- and *m*-dimethylcyclohexanes. The cyclopentane with branched side chain yielded a smaller amt. of cyclohexanes than that with a normal side chain.

A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION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ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

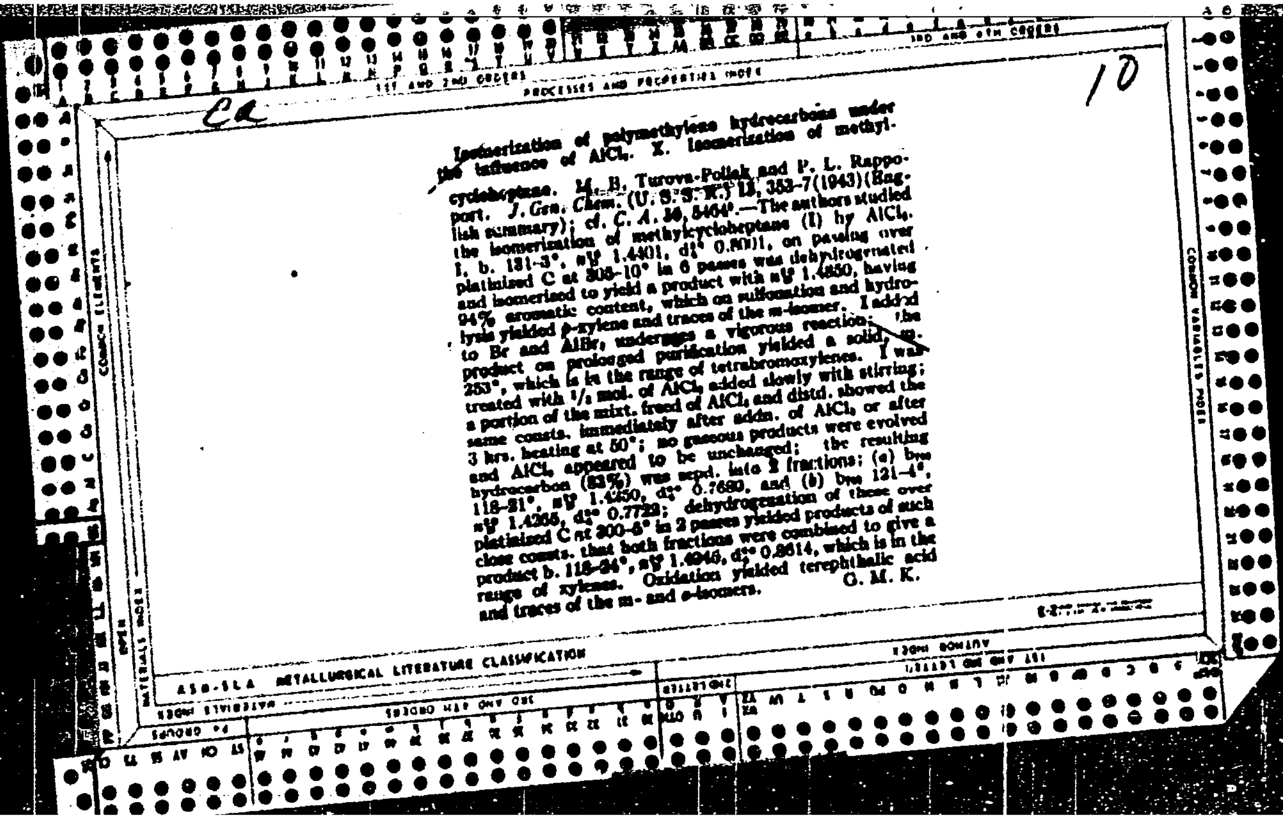
Ca

10

Isomerization of polymethylene hydrocarbons under the influence of aluminum chloride. VII. Isomerization of cycloheptane. M. B. Turova-Polyak and E. P. Sidel'kovskaya. *J. Gen. Chem.* (U.S.S.R.) 11, 817-20(1941); cf. *C. A.* 35, 3613⁴.—The authors studied the isomerization of cycloheptane by AlCl$_3$. The hydrocarbon was prepd. from cycloheptanone as follows: the ketone in alc. was heated on a water bath for 6 hrs. with 90% N$_2$H$_4$.H$_2$O in 15% excess, then the solvent and excess hydrazine were distd. off and the residue heated to 140°, dissolved in Et$_2$O, dried thoroughly by fused KOH and distd. *in vacuo*, yielding cycloheptanone hydrazone, b_{11} 109-10°, n_D^{20} 1.5132, d_4^{20} 0.9795, in 78-83% yield. The hydrazone was heated under reflux to 180-200° for 5 hrs. in the presence of fused KOH mixed with pieces of Pt, the reaction product sepd. from H$_2$O and distd. from fresh KOH and Pt, washed with 50% AcOH, H$_2$O, alkali, and finally with H$_2$O, dried over CaCl$_2$, and distd. from Na, yielding cycloheptane (I), b_{760} 116-18°, n_D^{20} 1.4440, d_4^{20} 0.8093, in 80% yield. Three parts of I and 1 part of AlCl$_3$ were mixed for isomerization. No observable action occurred in the cold. The mixt. was stirred and heated at 117-25° for 20 hrs. with exclusion of moisture. No gases were evolved, nor did any change in the AlCl$_3$ occur. The resulting hydrocarbon (68%) was washed, dried and distd. from Na, giving 2 fractions: (1) b_{760} 98-100°, n_D^{20} 1.4205, d_4^{20} 0.7671, and (2) b_{760} 100-4°, n_D^{20} 1.4220, d_4^{20} 0.7624. In view of the proximity of the consts. the 2 fractions were assumed to be the same substance, presumably methylcyclohexane. To establish its structure it was subjected to catalytic dehydrogenation over 20% platinized charcoal at 310-15°. After 6 passes in a control expt. with I. the final product had n_D^{20} 1.4522, with but a small rise in n_D per pass. The isomerization product, however, after but 4 passes showed n_D^{20} 1.4870, d_4^{20} 0.8522, showing that a different ring structure was formed during isomerization of I by AlCl$_3$, particularly suggestive of the behavior of the cyclohexane ring on similar treatment. With the H$_2$SO$_4$ method, the amt. of aromatic hydrocarbons in the product was found to be 94%, corresponding to 97-8% hexamethylene hydrocarbons in the isomerization product. The nonaromatic residue, n_D^{20} 1.4100, was probably a mixt. of lower polymethylene hydrocarbons and aliphatic hydrocarbons. Hydrolysis of the sulfonic acids according to Kizhner and Vendelshtein (*C. A.* 20, 2310) yielded MePh, identified by its phys. constants, conversion to pentabromotoluene and oxidation to BzOH. Isomerization of I into methylcyclohexane is not reversible, as the latter treated with AlCl$_3$ does not yield I (*C. A.* 34, 727¹). *Ibid.*

VIII. Isomerization of hexahydromesitylene. *Ibid* 821-3.—The authors studied the isomerization of hexahydromesitylene (I) by AlCl$_3$. I was prepd. by hydrogenation of mesitylene by a Ni catalyst (on Al$_2$O$_3$): I, purified by treatment with H$_2$SO$_4$, washing, and distn. from Na, b_{760} 137.8-9.0°, n_D^{20} 1.4280, d_4^{20} 0.7700. I was heated with AlCl$_3$ in a 3:1 mol. ratio for 20 hrs. at 140-7° in absence of moisture. The reaction mixt. sepd. into 2 layers; the upper layer, 75%, was unchanged I to a large extent; the lower layer was washed, dried and distd. over

Na, showing consts. very close to I. The hydrocarbon thus obtained b_{760} 137.8–44°, n_D^{20} 1.4297, d_4^{20} 0.7739. Its identity was established by dehydrogenation over platinized asbestos at 305–10°. In a control expt. I passed 5 times over the catalyst gave a product with n_D^{20} 1.4983, d_4^{20} 0.8620. The isomerization product on similar treatment gave a hydrocarbon mixt. with n_D^{20} 1.4835, d_4^{20} 0.8451, which indicated a high content of aromatic hydrocarbons, corresponding to 87.8% hexamethylene hydrocarbons in the isomeride. Treatment with H_2SO_4 and hydrolysis of the sulfonic acids gave mesitylene. The nonaromatic residue had n_D^{20} 1.4280, d_4^{20} 0.7703, aniline point 55.0°. This product was passed once more over the dehydrogenation catalyst, giving a product with n_D^{20} 1.4263. By the method of the aniline point the amt. of pentamethylene hydrocarbons in the isomeride was found to be 9.2%, with about 3.0% aliphatic hydrocarbons. Thus, the isomerization by $AlCl_3$ of I yields only 9% of an isomeric pentamethylene hydrocarbon, with the bulk of I remaining unchanged. **IX. Isomerization of 1,2-dimethylcyclopentane.** M. B. Turova-Pollak and E. V. Vsevolozhskaya. *Ibid.* 824-8.—The authors studied the isomerization of 1,2-dimethylcyclopentane (I) by $AlCl_3$. I was prepd. as follows. $(CH_2)_4(CO_2Et)_2$ was condensed to ethyl cyclopentanonecarboxylate, the Na salt of which was methylated to yield Et α-methylcyclopentanonecarboxylate, which after elimination of the carbethoxy group yielded 2-methylcyclopentanone, which by the Grignard reaction was converted into 1,2-dimethylcyclopentanol, which on dehydration gave 1,2-dimethylcyclopentene, which was hydrogenated to I. Et cyclopentanonecarboxylate was prepd. according to Cornubert and Borrel (*C. A.* 24, 3967). All other intermediates were prepd. according to Rysselberge (*C. A.* 21, 737). Dehydration of 1,2-dimethylcyclopentanol was done with $(CO_2H)_2$ at 115-20°, giving 75% of 1,2-dimethylcyclopentene, b_{760} 101.8-2.8°, n_D^{20} 1.4428, d_4^{20} 0.7800, which was hydrogenated over Pt at 160-70°, giving 90% of I, b_{760} 93.8-0.8°, n_D^{20} 1.4151, d_4^{20} 0.7577. I was passed over highly active platinized charcoal at 305-10° in order to detn. its case of dehydrogenation: the product was unchanged I. In an attempt to brominate I by Br in presence of $AlBr_3$ no cryst. product could be isolated, similarly to the case of the monosubstituted homologs of cyclopentane. I was mixed with $AlCl_3$ in 3:1 mol. ratio and heated to 100-4°. No gases were evolved nor did the $AlCl_3$ appear to be changed. A hydrocarbon was isolated in 76% yield, which on treatment with H_2SO_4 and drying with $CaCl_2$ had n_D^{20} 1.4224. A small portion of this product on bromination with Br in the presence of $AlBr_3$ gave pentabromotoluene, m. 280-2° (from PhMe). This apparently showed the product to be essentially methylcyclohexane. The hydrocarbon was fractionated over Na to give 2 fractions: b_{760} 98.4-100°, n_D^{20} 1.4203, d_4^{20} 0.7649, and b_{760} 100-0.8°, n_D^{20} 1.4220, d_4^{20} 0.7668. These fractions were dehydrogenated by passing over platinized charcoal at 305-10°; the products had n_D^{20} 1.4845, d_4^{20} 0.8484, and n_D^{20} 1.4896, d_4^{20} 0.8559, resp. The products were treated with H_2SO_4 and the sulfonic acids hydrolyzed, yielding PhMe (identified by its consts. and oxidation to BzOH). Calcn. back to I showed that 90.7% of it was isomerized to methylcyclohexane (expressed as cyclohexane hydrocarbons). A small residue of nonaromatized hydrocarbons was left, n_D^{20} 1.4144-1.4161 and d_4^{20} 0.7508-0.7558. G. M. K.



CA

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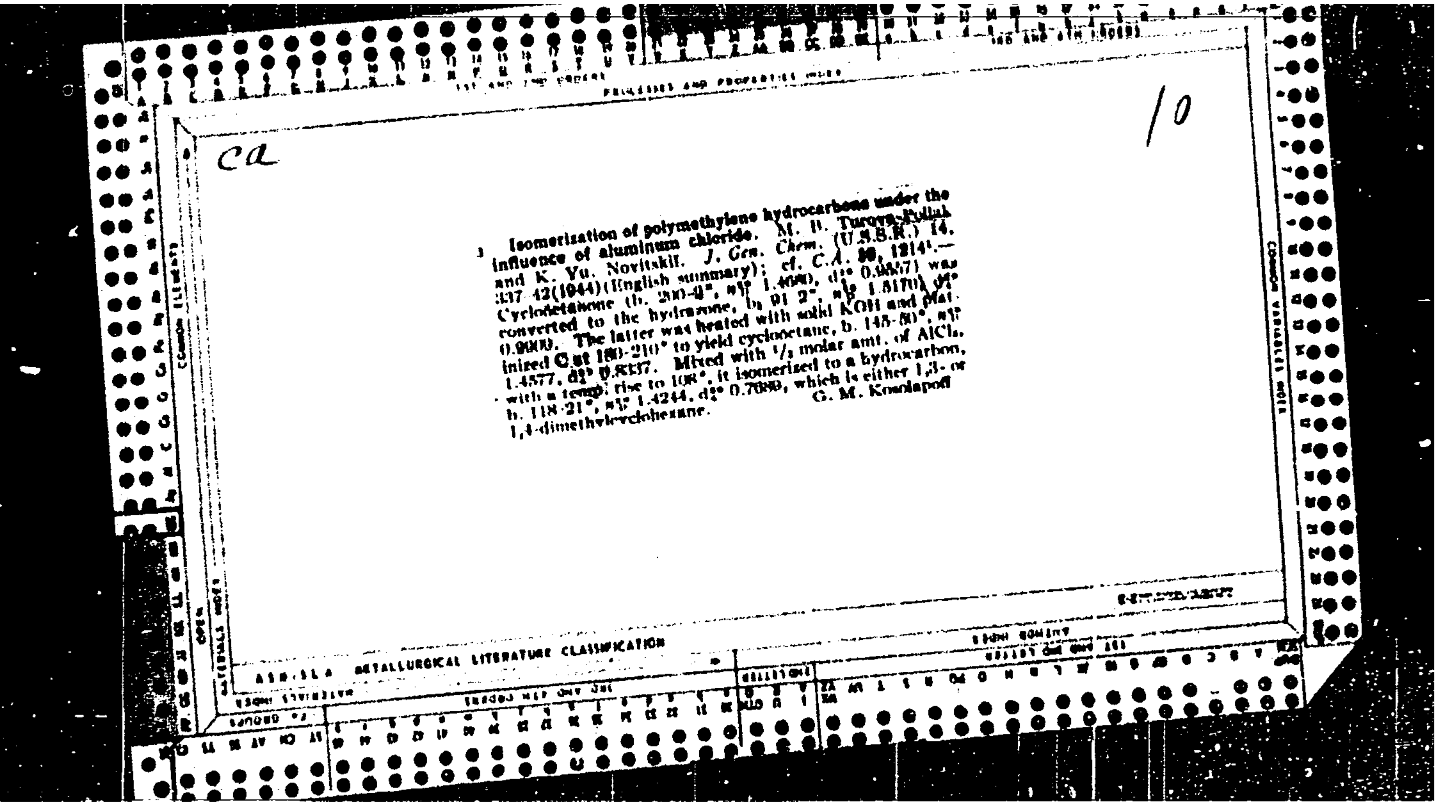
PROCESSES AND PROPERTIES INDEX

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

Isomerization of polymethylene hydrocarbons under the influence of $AlCl_3$. X. Isomerization of methylcycloheptane. M. B. Turova-Pollak and P. L. Rappoport. *J. Gen. Chem.* (U.S.S.R.) 13, 353-7(1943)(English summary); cf. *C. A.* 36, 5464⁹.—The authors studied the isomerization of methylcycloheptane (I) by $AlCl_3$. I, b. 131-3°, n_D^{20} 1.4401, d_4^{20} 0.8001, on passing over platinized C at 305-10° in 6 passes was dehydrogenated and isomerized to yield a product with n_D^{20} 1.4850, having 94% aromatic content, which on sulfonation and hydrolysis yielded *p*-xylene and traces of the *m*-isomer. I added to Br and $AlBr_3$ undergoes a vigorous reaction; the product on prolonged purification yielded a solid, m. 253°, which is in the range of tetrabromoxylenes. I was treated with 1/3 mol. of $AlCl_3$ added slowly with stirring; a portion of the mixt. freed of $AlCl_3$ and distd. showed the same consts. immediately after addn. of $AlCl_3$ or after 3 hrs. heating at 50°; no gaseous products were evolved and $AlCl_3$ appeared to be unchanged; the resulting hydrocarbon (83%) was sepd. into 2 fractions: (*a*) b_{760} 118-21°, n_D^{20} 1.4250, d_4^{20} 0.7680, and (*b*) b_{760} 121-4°, n_D^{20} 1.4265, d_4^{20} 0.7722; dehydrogenation of these over platinized C at 300-5° in 2 passes yielded products of such close consts. that both fractions were combined to give a product b. 118-24°, n_D^{20} 1.4946, d_4^{20} 0.8614, which is in the range of xylenes. Oxidation yielded terephthalic acid and traces of the *m*- and *o*-isomers. G. M. K.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

Ca

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3 **Isomerization of polymethylene hydrocarbons under the influence of aluminum chloride.** M. B. Turova-Pollak and K. Yu. Novitskii. *J. Gen. Chem.* (U.S.S.R.) 14, 337-42(1944)(English summary); cf. *C.A.* 38, 1214⁵.—Cyclooctanone (b. 200-2°, n_D^{20} 1.4690, d_4^{20} 0.9557) was converted to the hydrazone, b_1 91-2°, n_D^{20} 1.5170, d_4^{20} 0.9000. The latter was heated with solid KOH and platinized C at 180-210° to yield cyclooctane, b. 145-50°, n_D^{20} 1.4577, d_4^{20} 0.8337. Mixed with ¹/₃ molar amt. of $AlCl_3$ with a temp. rise to 108°, it isomerized to a hydrocarbon, b. 118-21°, n_D^{20} 1.4244, d_4^{20} 0.7689, which is either 1,3- or 1,4-dimethylcyclohexane. G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

TUROVA-POLYAK, M.B.; KHOANT CHONG IEM; SOSNINA, I.Ye.

Obtaining ketones in the presence of neodymium and erbium oxides. (MIRA 17:10)
Neftekhimia 4 no.4:603-608 Jl-Ag '64

1. Khimicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta.

[redacted]

Turova-Pollak, M. B.

Bazhulin, P. A., Sterin, Kh. E., Bulanova, T. F., Solovova, O. P. CA: 42-6238/i
Turova-Pollak, M. B. and Kazanskiy, B. A.
(P. N. Lebedev Phys. Inst. and Inst. Org. Chem. Acad. Sci., USSR, Moscow and
Moscow State Univ.)
Izvest. Akad. Nauk SSSR Otdel, Khim. Nauk 1946, No. 1, 7-18
Optical investigation of hydrocarbons. IV. Raman spectra of cycloparaffins.

[redacted]

10

Isomerization of polymethylene hydrocarbons under the influence of aluminum chloride. XII. Optimum conditions of the isomerization of alkylcyclopentanes. M. B. Turova-Pollak, N. P. Bogova, and E. N. Petrova (Moscow State Univ.). J. Gen. Chem. (U.S.S.R.) 16, 825-8 (1946); cf. C.A. 39, 4069.—Ethyl-, propyl-, and butylcyclopentanes with 1/3 molar amt. of $AlCl_3$ evolved heat spontaneously. In all cases isomerization into cyclohexane derivs. occurred (97.8, 86.6, and 98.4%, resp.). The latter class were identified by sulfonation of the dehydrogenated products, followed by hydrolysis of the sulfonic acids; the results indicated isomerization to methylcyclohexane, dimethylcyclohexane, and trimethylcyclohexane, resp. When the reaction mixts. were heated to the b.p. of the starting hydrocarbons, the yields rose to 100, 91.8, and 80%, resp. The low yield in the last case was apparently due to incipient cracking of the hydrocarbon at the b.p. (160°). **XIII. Isomerization of ethylcycloheptane.** M. B. Turova-Pollak and E. N. Petrova (Moscow State Univ.). *Ibid.* 829-34.—It was shown that in the course of the interaction of ethylcycloheptane (I) with $AlCl_3$ (with spontaneous heat evolution) there takes place an isomerization into derivs. of cyclohexane to the extent of 18-20%. The hydrocarbon-$AlCl_3$ mol. ratio was 3:1, max. temp. 57°; no gas evolution was observed. The reaction products b. 117-60° and ranged in n_D^{20} from 1.4330 to 1.4470; thus, although the b.ps. were higher than those known for the isomeric trimethylcyclohexanes, the values of n were within the exptl. error range. The products were again subjected to treatment with $AlCl_3$ with heating 18 hrs. to 140-5°. The bulk of the product now b. 138-40°, n_D^{20} 1.4278-1.4300, consts. very close to those of the isomeric trimethylcyclohexanes. The products were dehydrogenated over Pt-charcoal at 300-5° and were sulfonated by $H_2SO_4.H_2O$, which showed the presence of about 85% cyclohexane derivs. in the catalyzate. After hydrolysis of the sulfonated products, the resulting hydrocarbon mixt. b. 163-7°, n_D^{20} 1.5005, d_4^{20} 0.8678, while nitration gave a product, m. 235°, which corresponded to that of *2,4,6-trinitro-1,3,5-trimethylbenzene*. When I was passed 5 times over Pt-charcoal at 305-10°, its n_D^{20} changed from 1.4470 to 1.4870, indicating partial isomerization to the trimethylcyclohexane isomer mixt. Bromination of I in the presence of $AlBr_3$ gave a bromide, m. 224-6° (from MePh), which corresponds to the m.p. of *2,4,6-tribromo-1,3,5-trimethylbenzene*.

G. M. Kosolapoff

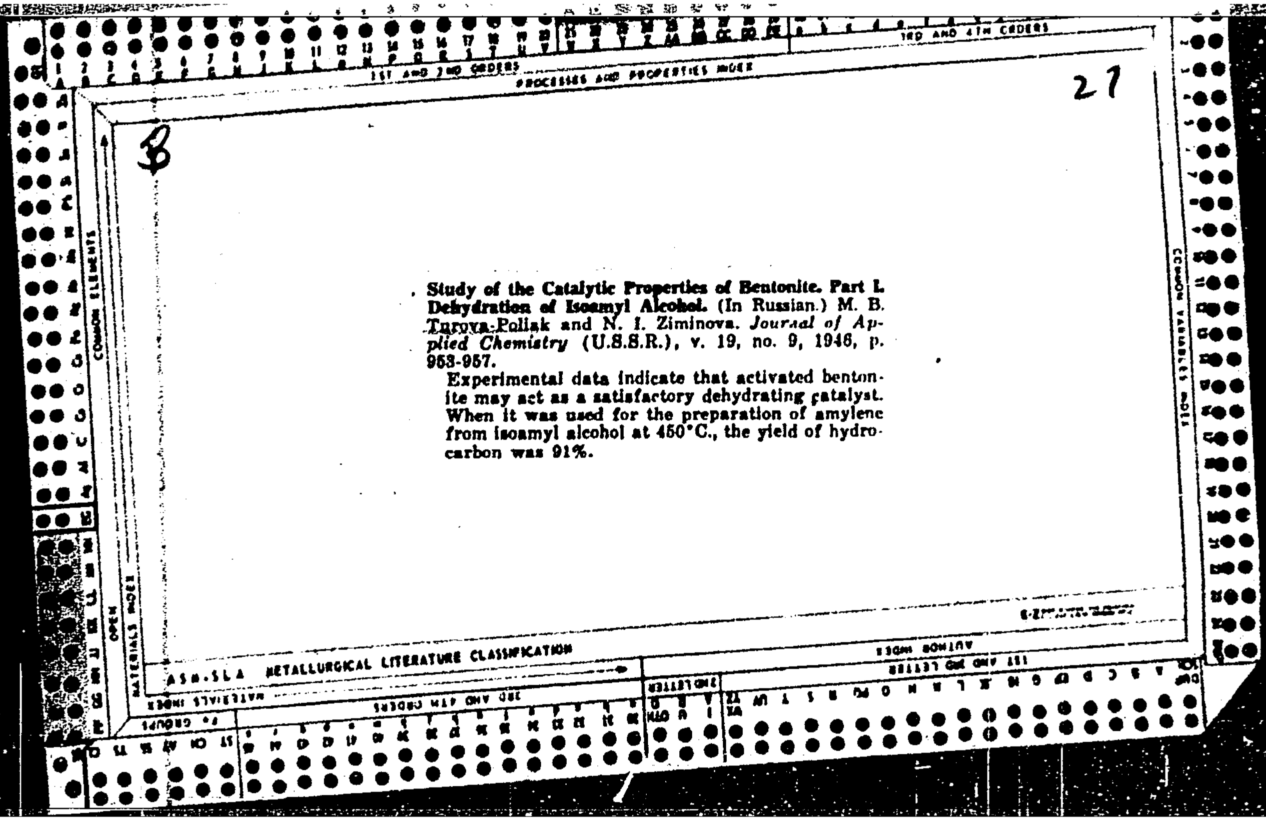
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

Bv. ale.

B1-8 Acids; Alkalis; Salts
Non-Metallic Elements

Catalytic properties of bentonite. I. Dehydration of isoamyl alcohol. M. B. Turova-Polyak and N. I. Ziminova (*J. appl. Chem., USSR*, 1946, 19, 953—957).—Bentonite, activated by heating with H_2SO_4, washing, drying, and heating at 400—450° for 2 hr., is an effective catalyst in dehydrating isoamyl alcohol to pentene with a max. yield of 91% at 460°. The catalyst is completely regenerated by heating in a stream of air at 500° for 1 hr.

E. B. UVAROV.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Study of the Catalytic Properties of Bentonite. Part I. Dehydration of Isoamyl Alcohol. (In Russian.) M. B. Turova-Poliak and N. I. Ziminova. *Journal of Applied Chemistry* (U.S.S.R.), v. 19, no. 9, 1946, p. 953-957.

Experimental data indicate that activated bentonite may act as a satisfactory dehydrating catalyst. When it was used for the preparation of amylene from isoamyl alcohol at 450°C., the yield of hydrocarbon was 91%.

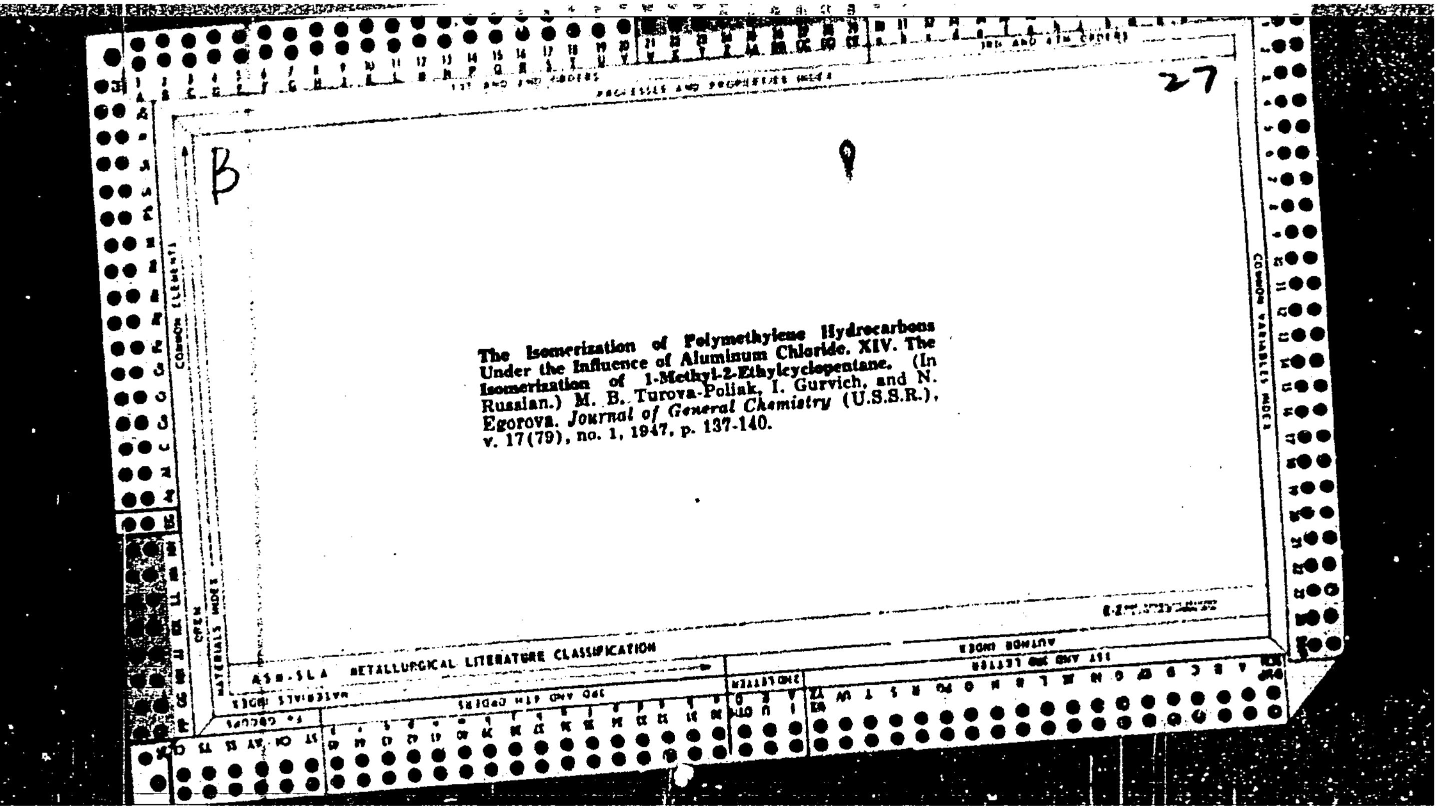
TUROVA-POLLAK, M. B.

Isomerization of polymethylene hydrocarbons under the influence of aluminum
chloride. XII. Optimum conditions of the isomerization of alkylcyclopentanes.
M.B. Turova-Pollak, N.P. Egorova, and E.N.Petrova (Moscow State Univ.).J.Gen. Chem.
(U.S.S.R.) 16, 825-8 (1946); cf. C.A. 39, 4060^5. - Ethyl-propyl-, and butylcyclopentanes
with 1/3 molar amt. of $AlCl_3$ evolved heat spontaneously, In allcases isomerization
into cyclohexane derivs. occured (97.8, 86.6, and 68.4%, resp.). The latter class were
identified by sulfonation of the dehydrogenated products, followed by hydrolysis of the
sulfonic acids; the results indicated isomerization to methylcyclohexane, dimethylcyclo-
hexane, and trimethylcyclohexane, resp. When the reaction mixts. were heated to the
b.p. of the starting hydrocarbons, the yields rose to 100, 91.8, and 80% resp. The
low yield in the last case was apparently due to incipient cracking of the hydrocarbon at
the b.p. (160°). XIII. Isomerization of ethylcycloheptane. M.B. Turova-Pollak and
E.N. Petrova (Moscow State Univ.). Ibid 829-34.- It was shown that in the course
of the interaction of ethylcyloheptane (I) with $AlCl_3$ (with spontaneous heat evolution)
there takes place an isomerization into derivs. of cyclohexane to the extent of 18-20%.
The hydrocarbon-$AlCl_3$ mol. ratio was 3:1. max. temp. 57°; no gas evolution was
observed. The reaction products b. 147.60° and ranged in n^{20}_D from 1.4330 to 1.4370;
thus, although the b.ps. were higher than those known for the isomeric trimethyl-
cyclohexanes, the values of n were within the exptl. error range. The products were
again subjected to treatment with $AlCl_3$ with heating 18 hrs. to 140-5°. The bulk of
the product now b. 138-46°, n^{20}_D 1.4278-1.4300, consts. very close to those of the
isomeric trimethylcyclohexanes. The products were dehydrogenated over Pt-charcoal at

TURCVA-POLLAK, M. B,

"The Isomeriaation of Polymethylene Hydrocarbons under the Influence of Aluminum Chloride. XIII. The Isomerization of Ethylcycloheptane " by M. B. Turova-Pollak, and E. N. Petrova. (p. 834)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1946, Volume 16, No. 6



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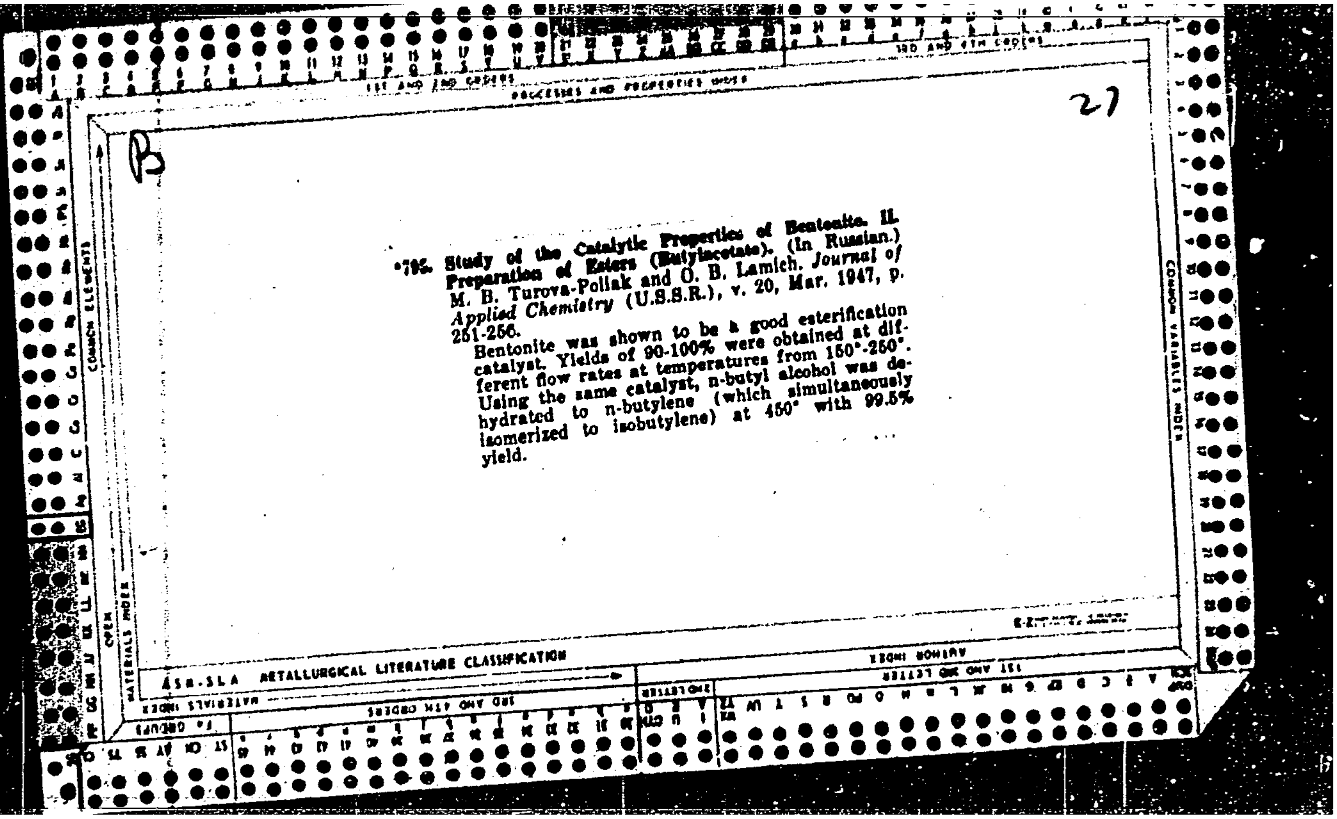
B

The Isomerization of Polymethylene Hydrocarbons Under the Influence of Aluminum Chloride. XIV. The Isomerization of 1-Methyl-2-Ethylcyclopentane. (In Russian.) M. B. Turova-Poliak, I. Gurvich, and N. Egorova. *Journal of General Chemistry* (U.S.S.R.), v. 17(79), no. 1, 1947, p. 137-140.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION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•795. **Study of the Catalytic Properties of Bentonite. II. Preparation of Esters (Butylacetate).** (In Russian.) M. B. Turova-Pollak and O. B. Lamich. *Journal of Applied Chemistry* (U.S.S.R.), v. 20, Mar. 1947, p. 251-256.

Bentonite was shown to be a good esterification catalyst. Yields of 90-100% were obtained at different flow rates at temperatures from 150°-250°. Using the same catalyst, n-butyl alcohol was dehydrated to n-butylene (which simultaneously isomerized to isobutylene) at 450° with 99.5% yield.

TUROVA-POLYAK, M. B. Dr. Chem. Sci.

Dissertation: "Isomerization of Polymethylene Hydrocarbons Under Action of Alumium Chloride." Moscow Order of Lenin State U imeni M. V. Lomonosov, 18 Jun 47.

SO: Vechernyaya Moskva, Jun, 1947 (Project #17836)

1ST AND 2ND ORDERS

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CA

Catalytic properties of bentonite. II. Synthesis of esters (butyl acetate). M. B. Turova-Pollak and O. B. Latich (Lomonosov State Univ., Moscow). *J. Applied Chem.* (U.S.S.R.) 20, 251-6(1947)(in Russian); cf. *C.A.* 41, 4437*b*.—(1) BuOH was passed over 30 g. bentonite, in a reaction tube 15 mm. in diam., 60 cm. long, at a rate of 0.4 ml./min.; at 250, 300, 350, 400, 450°, the total vol. of gas (evolved in 12.5 min.) was 458.4, 1020, 1202, 1268, 1383 ml.; the gas was all butene, its yield 30.2, 62.7, 80.3, 94.2, 99.5%, resp.; the liquid condensate was all unreacted BuOH; no Bu_2O was formed at any temp. (2) Bromination of the butene obtained at 400-450° gave $(CHBrMe)_2$, most of it meso, with a little racemic; hence, the catalyst brings about, along with dehydration, isomerization of 1-butene into 2-butene. (3) With equimol. mixts. of BuOH + Ac_2O, the yields, *b*, of BuOAc were: rate 0.1 ml./min., 100, 150, 200, 250°, *b* = 97, 100, 72, 56.4%; rate 0.4 ml./min., 100, 150, 200, 250, 300, 350, 400°, *b* = 92.0, 100.0, 100.0, 97.0, 88.3, 74.2, 59.0%; longer time of contact favors dehydration of BuOH into C_4H_8 and thus lowers *b*; diln. of the BuOH with Ac_2O evidently slows down its dehydration. At const. temp., 150°, increase of the rate of flow from 0.05 to 0.80 ml./min. had no effect whatever on *b* (100%); at 3.20 and 12.80 ml./min., *b* decreased only slightly, to 97.4 and 94.2%, resp. The same batch of catalyst kept its initial activity for 60 hrs. N. Thon

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

TUROVA-POLYAK, M. B.

Turova-Polyak, M. B. and Borunova, N. V. - "Synthesis of ethylaniline in the presence of 'solid phosphoric acid'," Vestnik Mosk. un-ta, 1948, No. 12, p. 85-89, - Bibliog: p.89

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949)

TUROVA-POLYAK, M. B.

Verbatim: - "Aleksey Aleksandrovich Balandin, (Chemist. On the 50th anniversary of his birth)," Vestnik Mosk. un-ta, 1948, No. 12, p. 189-92, with portrait

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949.)

TUROVA-POLYAK, M. B.

Turova- Polyak, M. B., Lukins, M. Yu., "Isomerization of Polymethylene Hydrocarbons Under the Influence of Aluminum Chloride. XV. Isomerization of Ethylcyclobutane."
(p. 179)
(Lab of Org Catalysis, Moscow Ord Lenin State U imeni N. V. Lomonosov)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii), 1948, Volume 18, No. 2

CA

10

Isomerization of polymethylenic hydrocarbons under the action of aluminum chloride. M. B. Turova-Polak. *Doklady Akad. Nauk S.S.S.R.* 60, 807-9(1948); cf. *C.A.* 42, 7255c.—Substituted 4-, 5-, 7-, and 8-membered cyclanes isomerize spontaneously on $AlCl_3$ into cyclohexane derivs., with evolution of heat. The following are the initial compds., the products of isomerization, and the yields (in wt. %) without and with external supply of heat: ethylcyclobutane → cyclohexane (with some methylcyclopentane), 36-37, —; methylcyclopentane → cyclohexane, 11.4 + 88.0, 21.5 + 78.5; ethylcyclopentane → methylcyclohexane, 92.3, 97.0; propylcyclopentane → 1,3- and 1,4-dimethylcyclohexanes, 82.7, 87.0; butylcyclopentane → 1,2,4-trimethylcyclohexane, 66.2, 76.3 (80.3 at 100°); amylcyclopentane → mixt. of tetramethylcyclohexanes, 0, 55.0 (at 150°); isopropylcyclopentane → 1,3- and 1,4-dimethylcyclohexanes, —, 85.4; 1,2-dimethylcyclopentane → methylcyclohexane, —, 91.3; 1-methyl-2-ethylcyclopentane → 1,3- and 1,4-dimethylcyclohexanes, —, 90.6; cycloheptane → methylcyclohexane, 94.5, 94.5; methylcycloheptane → 1,3- and 1,4-dimethylcyclohexanes, 100.0, 100.0; ethylcycloheptane → 1,3,5-trimethylcyclohexane, 18-20, 82.5; cyclooctane → 1,3- and 1,4-dimethylcyclohexanes, 100.0, 100.0. In the case of ethylcyclobutane, it is demonstrated that the reaction proceeds over the intermediate methylcyclopentane. Cyclohexane derivs. undergo changes only in individual cases. Methylcyclohexane and dimethylcyclohexanes remain unchanged on $AlCl_3$; ethylcyclohexane is isomerized into 1,3-dimethylcyclohexane to the extent of 100%; of cyclohexane itself 21% is converted into methylcyclopentane, 70% remains unchanged.

N. Thon

ASM-SLA METALLURGICAL LITERATU

TUROVA-POLYAK, M. B., ADAMOVA, V. A., TRESHCHEVA, E. G.

Hydrocarbons.

Isomerization of polymethylene hydrocarbons under effects of aluminum chloride. Vest. Mosk. un. 5 no. 6, 1950.

9. *Monthly List of Russian Accessions*, Library of Congress, November 195~~3~~,2 Uncl.

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Isomerization of polymethylene hydrocarbons under influence of aluminum chloride. XVI. Isomerization of 1,1-dimethylcyclopentane. M. B. Turova-Pollak, A. A. Adamova, and R. G. Treshcheva (Moscow State Univ.). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 250-5(1951); *Vestnik Moskov. Univ.* 5, No. 6, *Ser. Fiz.-Mat. i Estest. Nauk* No. 4, 55-61(1950); cf. *C.A.* 41, 1021*h*, 42, 7255*i*; 43, 157*e*.—1,1-Dimethylcyclopentane is unchanged by $AlCl_3$ at room temp., but after 10-15 hrs. at 100-15° it is changed to methylcyclohexane to the extent of 95-7% (by Raman method) or 92% (fractionation). The presence of quaternary C does not prevent the isomerization. The Raman analysis of the catalyzate made use of the 884 cm.$^{-1}$ line of 1,1-dimethylcyclopentane and the 760 and 845 cm.$^{-1}$ lines of methylcyclohexane. The prepn. was similar to that of Kazanskii, *et al.* (*C.A.* 42, 4530*d*), with the following improvements: dimedon was hydrogenated over Raney Ni at 90 atm. at 160°, and retreated 5-6 hrs. with H at 200° and 150 atm., giving 68.8% *1,1-dimethyl-3-cyclohexanol*, b_{10} 99°, n_D^{20} 1.4562, d_4^{20} 0.8030; oxidation with dil. HNO_3 with NH_4 metavanadate gave 70% mixed dimethyladipic acids, which, distd. over ThO_2 hydrate, gave 66% 2,2- and *3,3-dimethylcyclopentanones*, b_{760} 151-2°, d_4^{20} 0.8970, n_D^{20} 1.4346; these, boiled with excess $N_2H_4.H_2O$ in EtOH gave the *mixed hydrazones*, which were pyrolyzed in a Ag crucible with KOH and Pt-C, giving 68-9% *1,1-dimethylcyclopentane*, b_{760} 88.2°, n_D^{20} 1.4141, d_4^{20} 0.7540. The isomerizations were done with 0.33 mole $AlCl_3$. G. M. Kosolapoff

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TUROVA-POLYAK M. P.

USSR/Chemistry - Petroleum

"Isomerization of Polymethylen Hydrocarbons Under the Action of Aluminum Chloride. XVII. Isomerization of methylcyclohexane, 1, 1-Dimethylcyclohexane, 1, 2-Dimethylcyclohexane, and Ethylcyclohexane," N. D. Zelinskiy, M. P. Turova-Polyak, N. F. Tsvetkova, Ye. G. Treshchova, Moscow Order of Lenin State U Imeni M. V. Lomenosov

"Zhur Obshch Khim" Vol XXI, No 12, pp 2156-2160

Under action of $ALCL_3$ methylcyclopentanes are isomerized into methylcyclohexanes. However, this investigation revealed: (1) Methylcyclohexane is not noticeable isomerized. (2) 1, 1-Dimethyl-, 1, 2-dimethyl-, and ethylcyclohexane are each isomerized into same mixt, contg 58%, 20%, 14%, and 6%, resp, of 1, 3-dimethyl-, 1, 4-dimethyl- 1, 2-dimethyl-, and 1, 1-dimethylcyclohexane.

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Isomerization of cyclohexane by aluminum chloride N. D. Zelinskii, ~~M. B. Turova-Polyak~~, N. F. Tsvetkova, and B. G. Treshchova. *Zhur. Obshchei Khim.* (J. Gen. Chem.) 21, 2160-3(1951).—Cyclohexane, b_{760} 80°, n_D^{20} 1.4220, d_4^{20} 0.7773, treated with 0.33 part $AlCl_3$, did not evolve heat; after stirring 20 hrs. at 77-8° no gases were formed and distn. gave a mixt. b. 72.3-80.0°. Fractionation and examn. of the mixt. by the Raman method showed that some 24.5% methylcyclopentane was formed. No dimethylcyclobutane was detected. Raman analysis was done by the lines 385, 1158, and 1267 cm.$^{-1}$ for cyclohexane and 534, 849, and 1087 for methylcyclopentane.

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